

US EPA ARCHIVE DOCUMENT

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Hazardous and Solid Waste

A Basic Introduction to the Concepts



Outline of Topics



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- What is a hazardous waste?
- How to identify a hazardous waste
- What is a hazardous waste generator?
- Requirements for hazardous waste generators
- Universal Waste: What is it?
- Example Pictures
- Miscellaneous Hazardous Waste Issues
- Solid Waste Requirements

Example Wastes



- Lab Chemicals
- Aerosol Cans
- Used Oil
- Machine Fluids
- Photochemical and Printing Waste
- Paint Waste
- Solvent Waste
- Contaminated Rags
- Batteries
- Lamps

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Four Key Questions for Hazardous Waste Identification



1. Is the material a solid waste? (See [40 CFR Part 261.2](#))
2. Is the waste specifically excluded from RCRA? (See [40 CFR Part 261.4](#))
3. Is the waste a listed hazardous waste? (See [40 CFR Part 261.30](#))
4. Does the waste exhibit a characteristic of hazardous waste? (See [40 CFR Part 261.20](#))

Listed Hazardous Waste



- The F-list (nonspecific source wastes) - This list identifies wastes from common manufacturing and industrial processes, such as solvents that have been used in cleaning or degreasing operations. Because the processes producing these wastes can occur in different sectors of industry, the F-listed wastes are known as wastes from nonspecific sources. Wastes included on the F-list can be found in the regulations at [40 CFR §261.31](#).
- The K-list (source-specific wastes) - This list includes certain wastes from specific industries, such as petroleum refining or pesticide manufacturing. Certain sludges and wastewaters from treatment and production processes in these industries are examples of source-specific wastes. Wastes included on the K-list can be found in the regulations at [40 CFR §261.32](#).
- The P-list and the U-list (discarded commercial chemical products) - These lists include specific commercial chemical products in an unused form. Some pesticides and some pharmaceutical products become hazardous waste when discarded. Wastes included on the P- and U-lists can be found in the regulations at [40 CFR §261.33](#).

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Characteristic Hazardous Waste



- **Ignitability (D001)** - Ignitable wastes can create fires under certain conditions, are spontaneously combustible or have a flash point of less than 60 °C (140 °F). Examples include waste oils and used solvents. For more details, see [40 CFR §261.21](#).
- **Corrosivity (D002)** - Corrosive wastes are acids or bases (pH less than or equal to 2, or greater than or equal to 12.5) that are capable of corroding metal containers, such as storage tanks, drums and barrels. Battery acid is an example. For more details, see [40 CFR §261.22](#).
- **Reactivity (D003)** - Reactive wastes are unstable under "normal" conditions. They can cause explosions, toxic fumes, gases or vapors when heated, compressed or mixed with water. Examples include lithium-sulfur batteries and explosives. For more details, see [40 CFR §261.23](#).
- **Toxicity (D004)** - Toxic wastes are harmful or fatal when ingested or absorbed (e.g., containing mercury, lead, etc.). When toxic wastes are land-disposed, contaminated liquid may leach from the waste and pollute groundwater.

Making a Waste Determination



- Use of Generator's Own Knowledge
 - Material Safety Data Sheets (MSDS)
 - Generator's knowledge of production processes
 - Mass Balance
- Testing

Generator Responsibilities



- Make a waste determination on all wastes! The generator is the responsible party!
- Obtain an [EPA identification number](#) (available from [state environmental offices](#)).
- Comply with the [manifest system](#).
- Handle wastes properly before shipment (packaging, labeling, marking, placarding, accumulation time, etc.).
- Comply with record-keeping and reporting requirements.
- Comply with any additional state requirements for generators (contact your [state environmental office](#) for more information).

Generator Types



	CESQGs	SQGs	LQGs
Quantity Limits	≤100 kg/month ≤1 kg/month of acute hazardous waste ≤100 kg/month of acute spill residue or soil §§261.5(a) and (e)	Between 100 - 1,000 kg/month §262.34(d)	≥1,000 kg/month ≥1 kg/month of acute hazardous waste ≥100 kg/month of acute spill residue or soil Part 262 and §261.5(e)
EPA ID Number	Not required §261.5	Required §262.12	Required §262.12
On-Site Accumulation Quantity	≤1,000 kg ≤1 kg acute ≤100 kg of acute spill residue or soil §§261.5(f)(2) and (g)(2)	≤6,000 kg §262.34(d)(1)	No limit
Accumulation Time Limits	None §261.5	≤180 days or ≤270 days (if greater than 200 miles) §§262.34(d)(2) and (3)	≤90 days §262.34(a)

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Generator Requirements



	CESQG	SGQ	LQG
Storage Requirements	None §261.5	Basic requirements with technical standards for tanks or containers §§262.34(d)(2) and (3)	Full compliance for management of tanks, containers, drip pads or containment buildings §262.34(a)
Sent To	State-approved or RCRA-permitted/interim status facility §§261.5(f)(3) and (g)(3)	RCRA- permitted/interim status facility §262.20(b)	RCRA-permitted/interim status facility §262.20(b)
Manifest	Not required §261.5	Required §262.20	Required §262.20
Biennial Report	Not required §261.5	Not required §262.44	Required §262.41
Personnel Training	Not required (recommended) §261.5	Basic training required §262.34(d)(5)(iii)	Required §262.34(a)(4)
Contingency Plan	Not required (recommended) §261.5	Basic plan §262.34(d)(5)(i)	Full plan required §262.34(a)(4)
Emergency Procedures	Not required (recommended) §261.5	Required §262.34(d)(5)(iv)	Full plan required §262.34(a)(4)
DOT Transport Requirements	Yes (if required by DOT)	Yes §§262.30-262.33	Yes §§262.30-262.33

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Universal Waste



- *Batteries*, such as nickel-cadmium (Ni-Cd) and small, sealed lead-acid batteries found in electronic equipment, mobile telephones, portable computers and emergency backup lighting
- *Pesticides* that have been recalled or banned from use, are obsolete, have become damaged or are no longer needed due to changes in cropping patterns or other factors
- *Thermostats*, which can contain as much as three grams of liquid mercury and are found in homes and commercial, industrial, agricultural and community buildings
- *Spent lamps*, which include incandescent, fluorescent, high-pressure sodium, mercury vapor, metal halide, high-intensity discharge (HID) and neon bulbs or tubes

Universal Waste Handlers



- Anyone who handles a universal waste must determine his or her handler status. Large-quantity handlers produce 11,000 lbs. or more (about five to six tons) and small-quantity handlers produce less than 11,000 lbs.
- Large- and Small-Quantity Handlers:
 - Must not dispose of a universal waste.
 - Must not dilute or treat a universal waste on-site.
 - Must prevent releases to the environment.
 - Must label waste as a "universal waste."
 - May accumulate universal wastes on-site for up to one year.
 - May accumulate universal wastes for more than one year for the sole purpose of facilitating proper recovery or disposal.
 - May accept universal wastes from off-site and keep them for up to one year.
 - Must train employees on proper handling and emergency procedures.
 - Must respond to spills and manage the residue as hazardous waste.
 - May self-transport to an authorized destination facility.
 - Must comply with export requirements for foreign shipments.
 - In addition, large-quantity handlers must register and obtain an EPA identification number and keep records.

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Most Common Violations



- No registration or incomplete registration
 - No hazardous waste determination
- Improper label on hazardous waste containers and universal waste
- Improper storage of universal waste
- Open containers
- Used oil mixed with hazardous waste and not managed appropriately

What's Wrong with the Picture?



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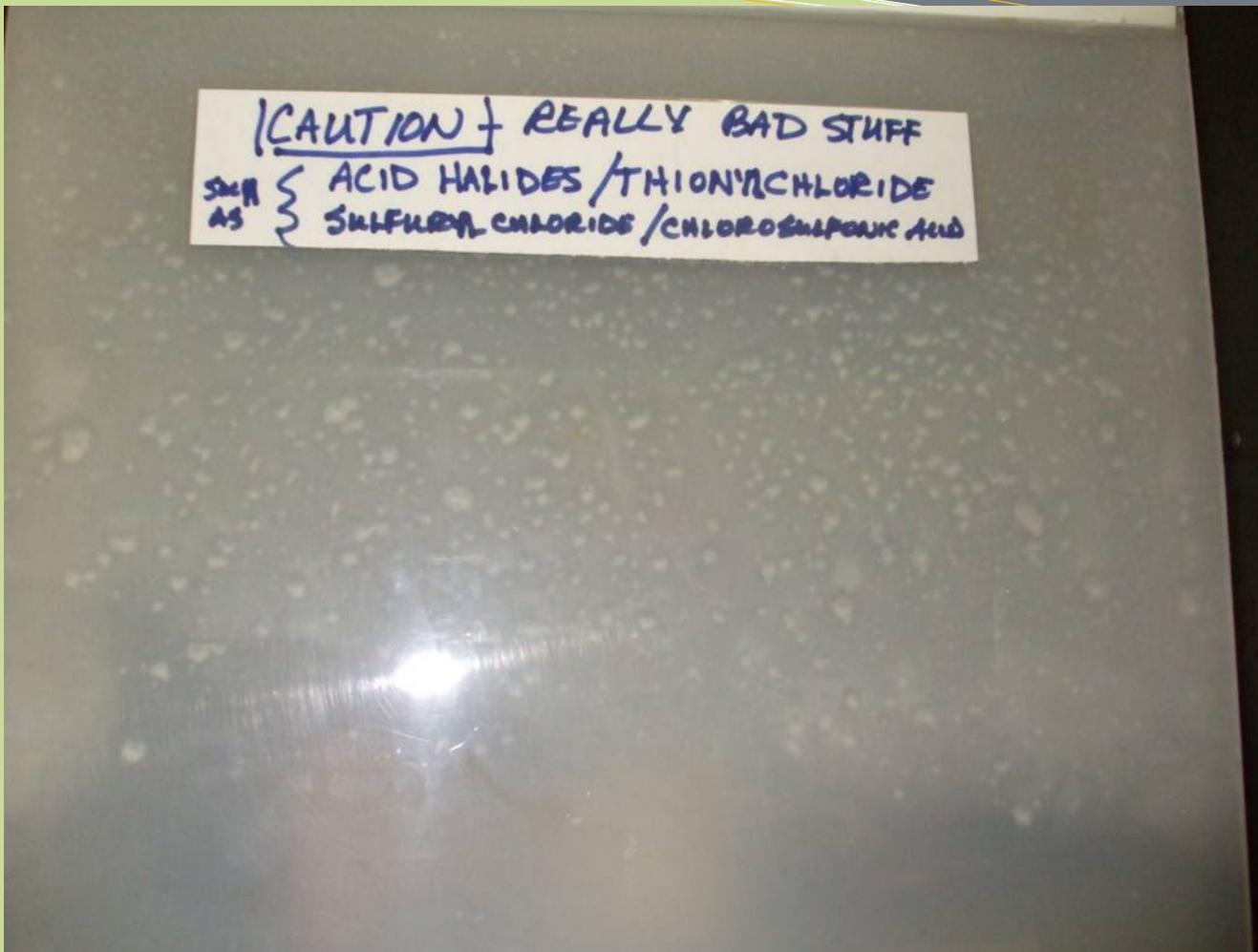
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Miscellaneous HW Issues



- Used Oil
 - <http://www.waste.ky.gov/branches/hw/Used+Oil.htm>
- Underground Storage Tanks
 - <http://www.waste.ky.gov/branches/ust/>
- Spill Response and Clean Up
 - KY DEP Emergency Response Team
 - Example PCB transformers spill and soil contamination
 - <http://www.dep.ky.gov/enviroemergencies/>
- Lead-Based Paint Activities
 - Abatement activities are regulated by CHFS.
 - <http://chfs.ky.gov/dph/lead.htm>
 - Unless tested and proven nonhazardous, any lead-based paint waste (paint chips, stripped paint residue, protective clothing and/or plastic sheeting, etc.) must be managed as hazardous waste.
 - Hazardous Waste Activity Form
- Fly Ash From Boilers
 - All ash must have a hazardous waste determination done prior to disposal.
 - Hazardous Waste Activity Form

Solid Waste Issues



- Composting/Land farming
- <1 acre Landfills

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Contact Information



Division of Waste Management

www.waste.ky.gov

Kenya Stump

Division of Compliance Assistance

envhelp@ky.gov

www.dca.ky.gov